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ABSTRACT

This paper presents a discussion of the use of microcomputers and computer graphics programs as basic design experiences which relate as much to the right as to the left side of the brain. It reviews selected research in art education that shows the importance of the right brain in various areas of creative behavior and in developing drawing skills. It is argued that the microcomputer allows the artist-user to function both analytically and intuitively--on both the left and right sides of the brain--with a high degree of visual and perceptual literacy, intuitive and creative insight, and aesthetic awareness. A personal experience is described involving the use of the computer with the right brain approach in computer graphics and computer assisted design. The paper concludes with comments on the work of Betty Edwards and Mona Brookes as well as observations on their ideas based upon tape recorded interviews conducted at the Los Angeles meeting of the National Art Education Association in April of 1988. (5 references) (Author/GL)

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Some Thoughts On

THE COMPUTER & THE RIGHT SIDE OF THE BRAIN

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THE COMPUTER & THE RIGHT SIDE OF THE BRAIN[1]

Abstract

This article will present a discussion of the use of the micro-computer, as well as computer graphics programs, as basic design experiences which relate as much to right as to the left side of the brain.

It will review some selected research literature in art education which shows the importance of the right brain in various areas of creative behavior and drawing skills.

It will argue, that while the computer has been shown as the sine qua non of left brain activity, conceptual and analytical thought processes; one can also approach it from a right brain perspective.

This article will detail a personal experience of the use of computer with the right brain approach in computer graphics and computer assisted design.

The article shall conclude with some comments about the work of Betty Edwards and Mona Brookes as well as observations on their ideas based upon tape recorded interviews conducted by this writer and Dr. Sandell at the Los Angeles meeting of the National Art Education Association in April of 1988.

[1]An earlier version of this paper was published in The Journal of Educational Technology. Paper originally prepared for presentation at a conference on the education of the artist in New York in Fall of 1988.

INTRODUCTION

As many artists and designers, I too had, for a long time resisted involvement with the personal computer. I had conceived of the micro-computer as being impersonal, remote, non-creative, and certainly less then "user-friendly". I did not view it as a possible design tool.

In the Summer of 1985, due to an IBM project, my own attitude towards the computer took a dramatic change. I became "hooked" on this new technology. The IBM project was called HANDY and it involved the use of a new authoring language for the development of interactive lessons for use with adults as well as children. I began to create a series of lessons exploring various aspects of color and motion in relation to general principles of basic design.

Color and motion were selected as the basic components of early lesson segments because they are two elements more suitable for the Handy Software.

This new IBM language may soon be on the educational market. It will be called "Experimental Playmaker Language" and as the title implies it is designed so that the teacher can write a script, create graphic images, and call upon video disk, audio tapes, and music to create a drama or event upon the screen.

As my own work with this new authoring language began to evolve, I saw possibilities for the artist and designer. The computer became my "electronic sketchbook". It became an essential artistic vehicle in which I could state an idea, vary that idea, try all possible combinations of color, texture, and movement and finally produce an almost endless series of variations upon the basic theme. The output assumed many forms. It was outputed from the computer onto hard or soft disk files. A series of slides which can be used as the basis for paintings or design. A sequence of images which, when combined with text, can serve the basis for book and story illustrations; films or video tapes which can exist as their own.

It became rather obvious to me, as I began to work in the creative environment of the micro-computer, that here was a basic artistic tool which related to those essential right brain functions that characterize the creative act. I was, "Drawing from the Right Side of the Brain" but on a computer screen.

I will explore in due course in this paper some of the possible evidence for why I can claim that I am working on the right side of the brain or working within what Betty Edwards like to describe as the R-mode. Some of my evidence will be base on conclusion as to the nature of the R-mode that were confirmed by a recent interview with Betty Edwards in Los Angeles California. (April 9, 1988)

DRAWING FROM THE RIGHT SIDE OF THE BRAIN

The work of Betty Edwards (1978) has demonstrated that individuals with relatively little formal artistic training can be encouraged by a few rather simple perceptual exercises, to use those creative and visual capacities that are now believed to be located in the right side of the brain.

As a part of the general review of studies in the teaching of drawing, this writer compared Edwards and her work to the perceptual learning tradition in art education. (Mc Whinnie, 1982) Edwards dearly relates to earlier efforts by June Mc Fee (1961) and Richard Salome (1985). The basic Edwards' hypothesis, as well as some of her methods, were used for many years in the Flash Drawing Lab at Ohio State University by Hoyt Sherman (Sherman, 1947).

The material presented in Table One tries to show the general division between right and left brains as to how the mind seems to divide both intellectual and creative functions. I do not mean to imply that each part of the brain is divorced from the other; but what these right - left mode functions seem to be, are the preferred ways that the brain and each individual has learned to divide and specialize the many tasks of thinking, feeling, perceiving, and creating. That they

are not unique functions for each part of the brain but the preferred function is the basic idea behind Edwards and her research efforts.

A part of the Edwards theory is that L-mode seems to be dominate in most adults at least, and in order to engage the R-mode, the problem or activity has to be presented in such a fashion as to seem trivial and unimportant to the traditional L-mode processes. In her view, when the L-mode gets bored or drops out, then R-mode processes have an opportunity to be engaged in the task or problem to be solved.

The skills generally associated with computers are those analytic skills which according to the table are located on the left side of the brain. However, these computer based skills which seem to be so typical of the L-mode are the necessary analytical thought process needed for computer programming and use of hardware. I am not writing of those kinds of skills but the skills and attitudes needed by the end-user of the software packages. The use of those software programs I would argue is the perfect environment for R-mode. The computer presents almost a perfect environment for the R-mode operational function. It is not an environment in which these two modes compete but one in which they support each other.

(Insert Table One Here)

One of the arguments to be made in this paper is that the various computer graphics software packages such as Dr. Halo, PC Paint, and Handy involve the user in right brain activities, as much, if not more than left brain activities. I shall try to make this clear in the balance of this essay.

Claire Wang (Wang, 1988) has recently completed a master thesis in art education which was an intensive review of the art education literature and research base relative to the input of the review - computer for the education of the artist. Her thesis demonstrated that with inprovements in computer hardware

and more sophisticated computer software developments, as well as the continued decrease in cost, plans the micro-computer capable of highly professional visual images within the reach of most artist and schools. Hence, some of the questions upon which we need more research can be listed as follows:

1. Do these skills reflect the two different ways the brain processes information of all kinds?

2. Is it important to stress that a dichotomy of skills is not to be understood, rather a complementarity and interdependency of skills?

3. While there are differentiating characteristics between the skills, do two important commonalities exist?

    a. Do analytic skills have relational components, relational skills have analytic components? The matter is one of the proportion of skills primarily involved in a given operation at a given time.

    b. Can each set of skills can be used to process the same information? The processing, however, is different.

In her more recent work (Edwards, 1987), Edwards has explored the use of the analogue drawing (an abstract drawing done to illustrate a word, mood, theme, a problem) as a basic language for the R-mode. It is a language used not to make art, but to communicate non-verbally.

Many of the graphic functions in several of the popular paint packages seem to allow the individual to achieve similar access to the R-mode. Procedures such as line scribble drawings, spray paint procedures, etc. are rather well suited to the R-mode. Many of these computer functions are automated and predetermined by many of the standard procedures.

(A) The Need for Greater Visual Literacy

What ever happened to those old ideas about aesthetic contemplation? About spending hours in a gallery of art studying one or two works? Has the speed of communication, possible in the electronic media, compressed the entire process of contemplation into a few moments? This question, is for me at least, one of the most critical issues and seems to relate to concerns expressed in the above list.

M. J. Rosenberg in his book on The Cybernetics of Art has addressed several of these concerns. He observed that Cybernetics achieves the ability to study both rational and irrational structures in the world by the development as the abstract study of order itself; order that may be conceived in the dual aspect of order in thought, understanding, and knowledge, most particularly in rational argument and in the formal structure of reason.

In Rosenberg's view, Cybernetics may be well-placed to deal with questions of art and offers the concept of effective procedures as a way of avoiding problems implicit in more traditional approaches to the general question, What is Art? Who is the Artist? What is the Work of Art?

My use of the computer as an idea generator has focused my attention on a number of issues which are:

1. The ease by which the artist can achieve a design solution might be obtained by very quick and easy methods.

2. The multiplicity of images that can be created in very short period of time.

3. The almost random aspect of what can be produced often with equal aesthetic and design qualities to what is done in more conventional ways.

4. The need for greater visual literacy and an increase in pattern recognition and development.

While in my own work there is no attempt to claim that the computer makes art, in fact I endeavor to do quite the opposite. For me, the final products of this process are the drawings and prints that have been done by traditional artistic methods. I have not focused upon the final product, but upon the process. The computer creates the images, those simulations of reality that are combined by an electronic means into the possibility of being artistic. The artist makes possibility an actuality.

(B) The Multiplicity of Images

The various software packages which I have employed (Dr. Halo, Handy, McPaint, McDraw, Brushwork) have the capacity for the presentation to the artist a collection of images many of which are variants of each other. The artist can view and select those to be rendered into other artistic formats. Again, this process would seem to call upon right brain behaviors that foster intuitive thought processes and call upon a high degree of visual literacy as a part of the review and selection process. Images can be combined, rotated, transformed, enlarged, guided, to an almost endless degree.

The images that I have made use of in my work are computer generated, they are not pre-published examples of clip art. Many of these images are variations upon some basic symbols used in my prints and drawings. Great importance seems to be placed upon the visual skills that are involved in aesthetic decision making. Which designs shall be selected for photos and slides? Which designs shall be used for yet more transformations?

The freedom which the micro-computer environment permits the artist-user allows the artist to work in a judgmental-free environment. That is errors are easily corrected, such freedom from judgment foster a spontaneous almost playful environment within which the R-mode seems to flourish.

Summary

This paper has tried to make the basic argument that the microcomputer allows the artist-user to function both analytically and intuitively; in other words to function on both the left and right side of the brain. Since graphic images can be created with a great speed, they can in fact almost be random; the artist-user is compelled to function with a high degree of:

visual and perceptual literacy

intuitive and creative insight

aesthetic awareness

This essay has been written more as a think piece or as a working hypothesis. It is based on observations and upon reading more then on research or data. It is hoped that if the idea is suggested that the computer is not just an analytical - number crunching machine, then maybe we will have the essential courage to explore more of the intuitive or right mode functions for which it also seems to be capable.

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